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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,264	01/05/2001	Tetsuo Usami	OKI.202	3022

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EXAMINER

RAO, SHRINIVAS H

ART UNIT PAPER NUMBER

2814

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/754,264

Applicant(s)

BRENER, IGAL

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

Applicants' Supplemental Amendment filed on January 24, 2003 has been entered on May 16, 2003 and forwarded to the Examiner on September 15, 2003 after the mailing of the Non-Final Action on April 07, 2003..

Therefore claims 10-13 as recited in the amendment of January 29, 2003 and claims 14 to 20 as recited in the Supplemental amendment entered on September 15, 2003 are currently pending in the Application.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 –20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang ( U.S. Patent No. 5,604,155 herein after Wang) previously applied in view of Fukui Soichi ( Japanese Patent Publication No. 9-249966, herein after Soichi) newly applied .

With respect to claim 10, Wang describes a method of depositing a wiring film over a semiconductor substrate , the method comprising :

Wang does not specifically describe a Al<sub>3</sub> Ti target

However Soichi in its table 2 , no. 2 describes using Al<sub>3</sub> Ti target to improve the reliability of the membrane( thin film ) formed that can be used in optical media devices.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Soichi's  $\text{Al}_3\text{Ti}$  target in Wang's method to improve the reliability of the membrane( thin film ) formed that can be used in optical media devices. ( Soichi Effect of the invention section and table 3).

The other limitations of claim 10 are :

providing a substrate (Wang col. 1 line 29 ), forming a Ti Layer over the substrate(Wang fig. 2 # 52, col. 4 lines 3-7), sputter depositing an  $\text{Al}_3\text{Ti}$  layer on said Ti layer using said  $\text{Al}_3\text{Ti}$  target ( Soichi English –abstract) and annealing said substrate at a temperature of at least  $400^\circ\text{C}$  to promote absorption of Si into said  $\text{Al}_3\text{Ti}$  layer. (Wang fig.3 # 108, col. 4 lines 25-26, col. 3 lines 5-6 ).

With respect to claim 11, wherein an Al layer is deposited on said  $\text{Al}_3\text{Ti}$  layer (Wang fig. 3, col. 4 lines 25-26).

With respect to claim 12, wherein the step of pattern-etching said Al layer thereby forming a wiring pattern. (Wang col. 2 lines 52-55).

With respect to claim 13, wherein the method further comprises forming an insulating layer between said substrate and said  $\text{Al}_3\text{Ti}$  layer (Wang col. 1 lines 36-38).

With respect to claim 14, Wang describes a method of depositing a wiring film, the method comprising :

Providing a substrate ( Wang col. 1 line 29 ) , forming a Ti Layer over the substrate(Wang fig. 2 # 52, col. 4 lines 3-7), depositing an  $\text{AlSiCu}$  layer on said Ti layer which forms an  $\text{Al}_3\text{Ti}$  layer on said Ti Layer ( Soichi English –abstract- the motivation to

combine Wang and Soichi is given above ) and pattern etching an AL layer which forms beneath said ALSiCU layer . ( Wang fig. 3 step 114).

With respect to claim 15, Wang describes the method as recited in claim 14, wherein said ALSi CU layer is deposited at a temperature of at least 400 degrees C. (Wang fig.3 # 108, col. 4 lines 25-26, col. 3 lines 5-6 ).

With respect to claim 16, Wang describes the method as recited in claim 14, wherein said substrate is annealed at a temperature of at least 400<sup>0</sup> C (Wang fig.3 # 108, col. 2 lines 36-37 ).

With respect to claim 17 it repeats the steps of claim 10 and is rejected for reasons set out under claim 10 above.

With respect to claim 18, Wang teaches a method as recited in claim 17, wherein said AL layer is deposited at a temperature of at least 400<sup>0</sup> C (Wang fig.3 # 108, col. 4 lines 25-26, col. 3 lines 5-6 ).

With respect to claim 19, Wang describes the method recited in claim 17, wherein said substrate is annealed at a temperature of at least 400<sup>0</sup> C (Wang fig.3 # 108, col. 2 lines 36-37 ).

With respect to claim 20 Wang describes a method as recited in claim 17, wherein said Al<sub>3</sub>Ti layer is deposited at a temperature of at least 400<sup>0</sup> C. ( Wang col. 4 lines 21 to 40).

Applicant's arguments with respect to claims 10-13 have been considered but are not persuasive for the following reasons.

Applicants' contend that their preambular ( i.e in the preamble) limitation "A method of forming a wiring film" is not taught by the Wang reference is not persuasive because it is well settled law that limitations in the preamble will not be given patentable weight because it has been held that a preamble is denied the effect of a limitation *Kropa V Robie*, 88 USPQ 478 ( CCPA 1951).

Further Wang teaches the Ti glue layer ( wiring film) prevents patterned defects at the time of etching in col. 4 lines 34 to 40. ( reproduced below).

The Ti glue layer 60 is sufficient to react with the Al in the Al/Si/Cu layer 62 to form  $TiAl_3$ . The Ti glue layer 60 prevents formation of silicon nodules by dissolving the Si nodules that precipitate from the Al/Si/Cu layer 62 in the  $TiAl_3$ . This eliminates Si precipitates which resist etching, allows good metal etching of the Al/Si/Cu layer 62, and prevents bridging.

Therefore all pending claims are not allowable.

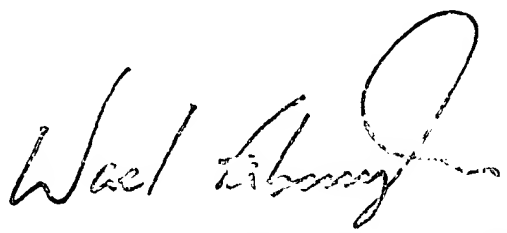
Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5584. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.

  
Steven H. Rao

Patent Examiner

November 16, 2003.

  
SUPERVISORY PRIMARY EXAMINER  
TECHNOLOGY CENTER 2800